JHARKHAND Rai University RANCHI

PRACTICE SET
End Semester Examination, May 2026

Program: BMLT **Subject: Hematology-I**
Semester: II **Subject Code: 42ABMT011**

Course Outcome:
After the successful completion of the course, the students will be able to:

Course Outcomes	Description
CO1	Understand the process of hematopoiesis, different types of normal blood cells and give the identifying characteristics and role of each.
CO2	Discuss how the hemoglobin, hematocrit, erythrocyte to indices and ESR are used to diagnose.
CO3	Distinguish between normal and abnormal test results.
CO4	Distinguish between normal and abnormal test results for the diseases.
CO5	Discuss how the clinical science of hematology and the complete blood count (CBC) are used in the diagnosis and treatment of disease.

1. **Section A : 10 Marks Question covering All units (Total No. of questions 30)**
2. **Section B : 20 Marks Question covering All units (Total No. of questions 10)**

UNIT- I
Section - A (10 marks)

1. Define hematology and explain the composition of blood.
   (CO1, LOT, Remember)
2. Describe the process of hematopoiesis.
   (CO1, LOT, Remember)
3. Explain the functions of different blood components.
   (CO1, LOT, Understand)
4. Apply the identifying characteristics to differentiate RBCs, WBCs, and platelets.
   (CO1, LOT, Apply)
5. Analyze the role of different blood cells in maintaining homeostasis.
   (CO1, HOT, Analyze)
6. Evaluate the clinical importance of morphology in diagnosing blood disorders.
   (CO1, HOT, Evaluate)

Section - B (20 marks)

7. Evaluate the role of different blood components in maintaining physiological homeostasis.
   (CO1, HOT, Evaluate)
8. Analyze morphological variations in blood cells and correlate them with specific diseases.
   (CO1, HOT, Analyze)

UNIT- II

Section - A (10 marks)

9. Define anticoagulants and list their types.
   (CO2, LOT, Remember)
10. Explain the mechanism of action of common anticoagulants (EDTA, heparin).
    (CO2, LOT, Understand)
11. Describe the uses of anticoagulants in hematology.
    (CO2, LOT, Remember)
12. Apply the appropriate anticoagulant selection for different laboratory tests.
    (CO2, LOT, Apply)
13. Analyze the advantages and disadvantages of different anticoagulants.
    (CO2, HOT, Analyze)
14. Evaluate the consequences of improper anticoagulant use in laboratory results.
    (CO2, HOT, Evaluate)

Section - B (20 marks)

15. Analyze the mechanism of action of different anticoagulants and their impact on blood samples.
    (CO2, HOT, Analyze)
16. Evaluate the suitability of various anticoagulants for specific hematological investigations.
    (CO2, HOT, Evaluate)

UNIT- III

Section - A (10 marks)

17. Define physiological variations in blood parameters.
    (CO3, LOT, Remember)
18. Explain methods of hemoglobin estimation.
    (CO3, LOT, Understand)
19. Describe procedures for RBC, WBC, and platelet counts.
    (CO3, LOT, Remember)
20. Apply manual cell counting techniques in laboratory practice.
    (CO3, LOT, Apply)
21. Analyze variations in blood counts under different physiological conditions (age, sex, altitude).
    (CO3, HOT, Analyze)
22. Evaluate the accuracy of manual vs automated cell counting methods.
    (CO3, HOT, Evaluate)

Section - B (20 marks)

23. Evaluate the reliability of different methods of hemoglobin estimation.
    (CO3, HOT, Evaluate)
24. Analyze discrepancies between manual and automated cell counting techniques.
    (CO3, HOT, Analyze)

UNIT- IV

Section - A (10 marks)

25. Define hemoglobinometry and hemocytometry.
    (CO5, LOT, Remember)
26. Explain different methods of hemoglobin estimation.
    (CO5, LOT, Understand)
27. Describe the procedure of hemocytometer usage.
    (CO5, LOT, Remember)
28. Apply hemocytometry principles in CBC analysis.
    (CO5, LOT, Apply)
29. Analyze sources of error in hemoglobin estimation and cell counting.
    (CO5, HOT, Analyze)
30. Evaluate the role of automated analyzers in modern hematology labs.
    (CO5, HOT, Evaluate)

Section - B (20 marks)

31. Analyze various methods of hemoglobin estimation and their clinical relevance.
    (CO5, HOT, Analyze)
32. Evaluate the advantages of automated hematology analyzers over manual methods.
    (CO5, HOT, Evaluate)

UNIT- V

Section - A (10 marks)

33. Define ESR and its phases.
    (CO4, LOT, Remember)
34. Explain factors affecting ESR.
    (CO4, LOT, Understand)
35. Describe different methods of ESR estimation.
    (CO4, LOT, Remember)
36. Apply routine urine examination techniques in laboratory diagnosis.
    (CO4, LOT, Apply)
37. Analyze the clinical significance of ESR in inflammatory diseases.
    (CO4, HOT, Analyze)
38. Evaluate the diagnostic importance of routine examination of biological fluids.
    (CO4, HOT, Evaluate)

Section - B (20 marks)

39. Analyze the factors influencing ESR and their clinical implications.
    (CO4, HOT, Analyze)
40. Analyze abnormalities in routine urine examination and correlate them with diseases.
    (CO4, HOT, Analyze)

Summary Sheet

CO Wise

CO	Q. No	Marks
CO1	1,2,3,4,5,6,7,8	100
CO2	9,10,11,12,13,14,15,16	100
CO3	17,18,19,20,21,22,23,24	100
CO4	25,26,27,28,29,30,31,32	100
CO5	33,34,35,36,37,38,39,40	100
Total		**500**

Unit Wise

Unit	Q. No	Marks
Unit 1	1,2,3,4,5,6,7,8	100
Unit 2	9,10,11,12,13,14,15,16	100
Unit 3	17,18,19,20,21,22,23,24	100
Unit 4	25,26,27,28,29,30,31,32	100
Unit 5	33,34,35,36,37,38,39,40	100
Total		**500**

Blooms Taxonomy Level (BTL) Wise

BTL	Q. No	Marks
LOT	1,2,3,4,9,10,11,12,17,18,19,20,25,26,27,28,33,34,35,36	200
HOT	5,6,7,8,13,14,15,16,21,22,23,24,29,30,31,32,37,38,39,40	300
Total		**500**

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Disclaimer: -This is a Practice set. The Question in End term examination will differ from the Practice set. This Practice set is meant for practice only.